2022 - 2023

QUALITY CONTROL TEST REPORTS

Client: Assistant Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.

Agency: Sri. Ramesh Y B, S/o Basavaraj, Contractor, Bangalore.

Name of Work : Improvements to roads and drains in Susheelamma Layout And ISAAC Layout in Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.

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QC ABSTRACT

Nameof Work: Improvements to roads and drains in Susheelamma Layout And ISAAC Layout in Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.

Sl. No.	Item	Quantity As Per BOQ	Required No's of testes	Actual No's of testes	Testes Results
1	GSB - V	43.46 Cum	1	1	Pass
2	WMM	65.19 Cum	-	-	-
		Gradation	1	1	Pass
		AIV	1	1	Pass
		Shape Test	1	1	Pass
		Atterberg Limits	1	1	Pass
3	DBM	14.49 Cum	-	-	-
		Quality of Binder	1	1	Pass
		AIV	1	1	Pass
		Shape Test	1	1	Pass
		Gradation	1	1	Pass
		Specific Gravity	1	1	Pass
		Stability of Mix	1	1	Pass
		Bitumen content	1	1	Pass
4	BC	69.18 Cum	-	-	-
		Quality of Binder	1	1	Pass
		AIV	1	1	Pass
		Shape Test	1	1	Pass
		Gradation	1	1	Pass
		Specific Gravity	1	1	Pass
		Stability of Mix	2	2	Pass
		Bitumen content	2	2	Pass

A.E.E

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JobNo: CACE/BBMP/RYB/W.No.02/2022-23 Date 22.02.2023

GRADATION FOR GSB (Grading V)

Client : **Assistant Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.

Agency : **Sri. Ramesh Y B, S/o Basavaraj,** Contractor, Bangalore.

Name of work : Improvements to roads and drains in Susheelamma Layout And ISAAC Layout in Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.

BIS Code : IS 2386 Part (1):1963
: IS 2720 part (5):1985

Date of Testing : 20.02.2023 to 22.02.2023

Oven Dry Wt (gm) : 13000

TABLE – 1

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirements as per MORTH 5th edition table 400.1
75	0	0	0.00	100	100
53	765	765	5.88	94.12	80-100
26.5	2158	2923	22.48	77.52	55-90
9.5	2065	4988	38.37	61.63	35-65
4.75	1869	6857	52.75	47.25	25-50
2.36	3689	10546	81.12	18.88	10-20
0.85	1720	12266	94.35	5.65	2-10
0.425	265	12531	96.39	3.61	0-5

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Table 2

Sl. No.	Particulars	Test Results	Requirements as per MORTH 5th edition table 400.2
1	Liquid Limit, %	19.50	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Remarks: Satisfies MORTH Specifications as per Table 400-1, Grading V

Note:

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Job No.: CACE/BBMP/RYB/W.No.02/2022-23 Date:02.03.2023

ATTERBERG LIMITS TEST FOR WMM

Client : **Assistant Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.

Agency : **Sri. Ramesh Y B, S/o Basavaraj,** Contractor, Bangalore.

Name of Work : Improvements to roads and drains in Susheelamma Layout And ISAAC Layout in Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.

IS Code: : IS 2720(Part 5):1985

Date of Testing : 28.02.2023 to 02.03.2023

Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	20.50	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

Note:

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2. The results indicated above are based on the tests carried out on the samples collected at the site.
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A.E.E AE-01

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Job No.: CACE/BBMP/RYB/W.No.02/2022-23 **Date:** 28.02.2023

Aggregate Impact Value

Client	**Assistant Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
Agency	**Sri. Ramesh Y B, S/o Basavaraj,** Contractor, Bangalore.
Name of the Work	Improvements to roads and drains in Susheelamma Layout And ISAAC Layout in Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.
IS Code:	IS 2386 (Part 4) 1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	28.02.2023

Sl No.	Details	Test No. 1	Test No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	382	383	
2	Weight of agregate passing 2.36 mm steve after the test = W_2 g	84	85.5	
3	Weight of aggregate retained 2.36 mm steve after the test = W_3 g	298	297.5	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	21.99	22.32	22.16

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

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AE.02

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Job No.: CACE/BBMP/RYB/W.No.02/2022-23 Date : 28.02.2023

GRADATION FOR WMM

Client : **Assistant Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.

Agency : **Sri. Ramesh Y B, S/o Basavaraj,** Contractor, Bangalore.

Name of Work : Improvements to roads and drains in Susheelamma Layout And ISAAC Layout in Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.

IS Code: :IS 2386 (Part 1):1963(RA 2011)

Date of Testing : 28.02.2023

Material Type : Wet Mix Macadam

Oven Dry.Wt, grar 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	215	215	2.2	97.9	95-100
22.4	2432	2647	26.5	73.5	60-80
11.2	2048	4695	47.0	53.1	40-60
4.75	1865	6560	65.6	34.4	25-40
2.36	1145	7705	77.1	23.0	15-30
0.600	856	8561	85.6	14.4	8-22
0.075	1241	9802	98.0	2.0	0-5

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A.E.E AE-01

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Job No.: CACE/BBMP/RYB/W.No.02/2022-23 Date : 28.02.2023

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Assistant Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
Agency	**Sri. Ramesh Y B, S/o Basavaraj,** Contractor, Bangalore.
Name of Work	Improvements to roads and drains in Susheelamma Layout And ISAAC Layout in Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.
BIS code:	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	28.02.2023

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	12.6	13.2	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	11.9	12.1	
	Combined Flakiness & Elongation index	24.50	25.30	

Note:

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A.E.E AE-a

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Job No: CACE/BBMP/RYB/W.No.02/2022-23 Date: 07.03.2023

TEST REPORT ON PAVING BITUMEN

Client	**Assistant Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
Agency	**Sri. Ramesh Y B, S/o Basavaraju,** Contractor, Bangalore.
Name of work	Improvements to roads and drains In Susheelamma Layout And ISSAC Layout In Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.
BIS Code	IS 73:2013,IS 1203:1978, IS 1208:1978, IS 1205:1978, IS1448(P-69):1969
Date of Testing	**07.03.2023**
Type of Mix	**Dense Graded Bituminous Macadam , VG 30**
Source of Location	**Hot Mix Plant**

The results of the tests conducted on the bitumen sample using for Dense Graded Bituminous Macadam

Sl.No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 0C, 100gms, 5sec, 1/10 mm	48	Min 45
2	Softening point, 0C	51	Min 47
3	Ductility at 250C, cm	99	Min40
4	Flash Point, 0C	280	Min 220

Note:

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A.E.E AE-02

For CIVIL AIM CONSULTANTS & ENGINEERS

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Job No: CACE/BBMP/RYB/W.No.02/2022-23 Date : 07.03.2023

TEST RESULTS OF AGGREGATE IMPACT VALUE

Client : **Assistant Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
Agency : **Sri. Ramesh Y B, S/o Basavaraju,** Contractor, Bangalore.
Name of work : Improvements to roads and drains In Susheelamma Layout And ISSAC Layout In Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.
Source / Location : Hot Mix Plant, Bangalore
BIS Code : IS 2386 Part (4) 1963
Type of Mix : Dense Graded Bituminous Macadam
Date of test : 07.03.2023

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W1 g	384	383	
2	Weight of agregate passing 2.36 mm sieve after the test = W2 g	83	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W3 g	301	298	
5	Aggregate Impact value = percent fines	21.61	22.19	21.90
	100* (W2/W1) percent			

Comments:
→ Maximum allowable Aggregate Impact value for Dense Graded Bituminous Macadam is 27% (Table 500-8 of MORTH specification)

Note:
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JobNo: CACE/BBMP/RYB/W.No.02/2022-23 Date : 07.03.2023

TEST RESULTS OF AGGREGATE SHAPE TEST
(Flakiness & Elongation)

Client : **Assistant Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.

Agency : **Sri. Ramesh Y B, S/o Basavaraju,** Contractor, Bangalore.

Name of work : Improvements to roads and drains In Susheelamma Layout And ISSAC Layout In Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.

BIS Code : IS 2386 Part (1):1963

Date of Test : 07.03.2023

Type of Mix : Dense Graded Bituminous Macadam

Sl.No.	Flakiness Index Value(%)	Elongation Index Value(%)	Total(Combined Flakiness and Elongation)(%)	Requirements
1	11.80	13.60	25.40	Maximum allowable Combined Flakiness and Elongation Indices for Dense Graded Bituminous Macadam is 35% as per Table 500.8 MORTH Specification.
2	12.20	13.80	26.00	

Note:

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AE-2

For CIVIL AIM CONSULTANTS & ENGINEERS

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Job No.: CACE/BBMP/RYB/W.No.02/2022-23

Date: 09.03.2023

Specific Gravity And Water Absorption Test

Client	**Assistant Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
Agency	**Sri. Ramesh Y B, S/o Basavaraju,** Contractor, Bangalore.
Name of the Work	Improvements to roads and drains In Susheelamma Layout And ISSAC Layout In Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.
BIS Code	IS 2386(Part 3) 1963
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	07.03.2023 to 09.03.2023

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2019	2021	2023	
2	Weight of basket suspended in water	W_2 g	754	754	754	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_3$ g	1265	1267	1269	
4	Weight of saturated surface dry aggregate in air	W_3 g	2014	2016	2018	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_4)$ g	749	749	749	
6	Weight of oven dried aggregate	W_4 g	2008	2009	2010	
7	Specific Gravity	$W_4/(W_3-W_4)$	2.681	2.682	2.684	2.682
8	Apparent Specific gravity	$W_4/(W_4-W_4)$	2.703	2.708	2.713	2.708
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.30%	0.35%	0.40%	0.35%

Comments:

→ Maximum allowable Aggregate Water absorption value for Dense Graded Bituminous Macadam is 2.0%(As per MORTH table 500.8)

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Job No.: CACE/BBMP/RYB/W.No.02/2022-23

Date: 14.03.2023

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
Agency	:	**Sri. Ramesh Y B, S/o Basavaraju,** Contractor, Bangalore.
Name of the Work	:	Improvements to roads and drains In Susheelamma Layout And ISSAC Layout In Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	14.03.2023

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	10.55	9.48	9 Kn (min)
2	Marshal flow, mm	2.13	3.34	2 – 4
3	Percent air voids in Mineral Aggregate	13.46	14.52	13 – 15
4	Voids in Compacted Mix	3.63	4.78	3 – 6
5	Percent Voids filled with Bitumen	69.15	70.54	65 - 75
6	Density, g/cc	2.25	2.27	--

Note:

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AE-02

For CIVIL AIM CONSULTANTS & ENGINEERS

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Job No.: CACE/BBMP/RYB/W.No.02/2022-23 Date: 14.03.2023

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MI)

AASHTO T 164 & AASHTO T 30

Client	**Assistant Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
Agency	**Sri. Ramesh Y B, S/o Basavaraju,** Contractor, Bangalore.
Name of the Work	Improvements to roads and drains In Susheelamma Layout And ISSAC Layout In Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.
Date of Testing	14.03.2023

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477.5	477
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g (corrected)	22.50	23.00
7. Bitumen content in %	4.50	4.60
8. Average	4.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	32.5	32.5	6.8	93.2	90 - 100
19	72.2	104.7	21.9	78.1	71 - 95
13.2	66.3	171	35.8	64.2	56 - 80
4.75	80.4	251.4	52.6	47.4	38 - 54
2.360	72.9	324.3	67.9	32.1	28 - 42
0.300	90.5	414.8	86.9	13.1	7 - 21
0.075	36.3	451.1	94.5	5.5	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	33.8	33.8	7.1	92.9	90 - 100
19	72.4	106.2	22.3	77.7	71 - 95
13.2	62.8	169	35.4	64.6	56 - 80
4.75	83.30	252.3	52.9	47.1	38 - 54
2.360	74.9	327.2	68.6	31.4	28 - 42
0.300	92.8	420	88.1	11.9	7 - 21
0.075	24.6	444.6	93.2	6.8	2 - 8

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Job No.: CACE/BBMP/RYB/W.No.02/2022-23

Date: 08.03.2023

Aggregate Impact Value

Client	**Assistant Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
Agency	**Sri. Ramesh Y B, S/o Basavaraju,** Contractor, Bangalore.
Name of the Work	Improvements to roads and drains In Susheelamma Layout And ISSAC Layout In Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.
BIS Code	IS 2386(Part 4):1963
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	08.03.2023

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	382	384	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	85	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	297	297	
4	Aggregate Impact value = percent fines	22.25	22.66	
	100* (W_2/W_1) percent			22.45

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%(MORTH table no.500.16)

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

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Job No.: CACE/BBMP/RYB/W.No.02/2022-23 Date : 08.03.2023

Aggregate Gradation Test

IS : 2386 Part I

Client	**Assistant Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
Agency	**Sri. Ramesh Y B, S/o Basavaraju,** Contractor, Bangalore.
Name of the Work	Improvements to roads and drains In Susheelamma Layout And ISSAC Layout In Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.
BIS Code	IS 2386(Part 1):1963
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	08.03.2023

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	410	8.20	8.20	91.80	90 - 100	
9.5	489	9.78	17.98	82.02	70 - 88	
4.75	630	12.60	30.58	69.42	53 - 71	
2.36	675	13.50	44.08	55.92	42 - 58	
1.18	526	10.52	54.60	45.40	34 - 48	
0.600	542	10.84	65.44	34.56	26 - 38	
0.300	489	9.78	75.22	24.78	18 - 28	
0.150	365	7.30	82.52	17.48	12 - 20	
0.075	480	9.60	92.12	7.88	4 - 10	

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	426	8.52	8.52	91.48	90 - 100	
9.5	542	10.84	19.36	80.64	70 - 88	
4.75	685	13.70	33.06	66.94	53 - 71	
2.36	630	12.60	45.66	54.34	42 - 58	
1.18	556	11.12	56.78	43.22	34 - 48	
0.600	549	10.98	67.76	32.24	26 - 38	
0.300	642	12.84	80.60	19.40	18 - 28	
0.150	189	3.78	84.38	15.62	12 - 20	
0.075	486	9.72	94.10	5.90	4 - 10	

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Job No.: CACE/BBMP/RYB/W.No.02/2022-23 Date : 08.03.2023

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Assistant Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
Agency	**Sri. Ramesh Y B, S/o Basavaraju,** Contractor, Bangalore.
Name of Work	Improvements to roads and drains In Susheelamma Layout And ISSAC Layout In Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Bituminous Concrete
Date of Testing	08.03.2023

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 500.16
1	Flakiness Index	11.2	11.8	Combined Flakiness & Elongation index Max 35%
2	Elongation Index	12.6	12.9	
	Combined Flakiness & Elongation index	23.80	24.70	

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A.E.E AE-2

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Date : 10.03.2023

Job No.: CACE/BBMP/RYB/W.No.02/2022-23

Specific Gravity And Water Absorption Test

Client	**Assistant Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
Agency	**Sri. Ramesh Y B, S/o Basavaraju,** Contractor, Bangalore.
Name of the Work	Improvements to roads and drains In Susheelamma Layout And ISSAC Layout In Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.
BIS Code	IS 2386(Part 3):1963
Type of Mix	Bituminous Concrete
Date of Testing	08.03.2023 to 10.03.2023

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2021	2023	2025	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1266	1268	1270	
4	Weight of saturated surface dry aggregate in air	W_3 g	2016	2018	2020	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	750	750	750	
6	Weight of oven dried aggregate	W_4 g	2011	2012	2013	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.681	2.683	2.684	2.683
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.699	2.704	2.709	2.704
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.25%	0.30%	0.35%	0.30%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%(MORTH table 500.16)

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Job No.: CACE/BBMP/RYB/W.No.02/2022-23 Date: 15.03.2023

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Yelahanka Sub Division, BBMP, Bangalore.
Agency	:	**Sri. Ramesh Y B, S/o Basavaraju,** Contractor, Bangalore.
Name of the Work	:	Improvements to roads and drains In Susheelamma Layout And ISSAC Layout In Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	15.03.2023

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	10.42	9.74	9 Kn (min)
2	Marshal flow, mm	3.89	2.85	2 – 4
3	Percent air voids in Mineral Aggregate	13.32	14.68	13 – 15
4	Voids in Compacted Mix	3.42	4.72	3 – 6
5	Percent Voids filled with Bitumen	70.41	69.53	65 - 75
6	Density, g/cc	2.26	2.27	--

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Job No.: CACE/BBMP/RYB/W.No.02/2022-23 Date : 15.03.2023

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore.
AGENCY	Sri. Ramesh Y B, S/o Basavaraju, Contractor, Bangalore.
NAME OF THE WORK	Improvements to roads and drains In Susheelamma Layout And ISSAC Layout In Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	15.03.2023

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472	472.5
3. Weight of Asphalt and Mineral matter Extracted, g	28	27.5
4. Weight of Mineral Matter, g	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	28	27.5
7. Bitumen content in %	5.60	5.50
8. Average	5.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	12.1	12.1	2.6	97.4	90 - 100
9.5	53.3	65.4	13.9	86.1	70 - 88
4.75	96.6	162	34.3	65.7	53 - 71
2.36	45.5	207.5	44.0	56.0	42 - 58
1.18	43.3	250.8	53.1	46.9	34 - 48
0.600	51.1	301.9	64.0	36.0	26 - 38
0.300	53.3	355.2	75.3	24.7	18 - 28
0.150	36.6	391.8	83.0	17.0	12 - 20
0.075	51.1	442.9	93.8	6.2	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	13.1	13.1	2.8	97.2	90 - 100
9.5	63.9	77	16.3	83.7	70 - 88
4.75	93.5	170.5	36.1	63.9	53 - 71
2.36	52.7	223.2	47.2	52.8	42 - 58
1.18	55.2	278.4	58.9	41.1	34 - 48
0.600	53.6	332	70.3	29.7	26 - 38
0.300	47.1	379.1	80.2	19.8	18 - 28
0.150	26.1	405.2	85.8	14.2	12 - 20
0.075	43.1	448.3	94.9	5.1	4 - 10

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BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Yelahanka Sub Division, BBMP, Bangalore
AGENCY	Sri. Ramesh Y B, S/o Basavaraju, Contractor, Bangalore.
NAME OF THE WORK	Improvements to roads and drains In Susheelamma Layout And ISSAC Layout In Chowdeshwari Ward No-02 Of Yelahanka Sub Division, BBMP, Bangalore
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	15.03.2023

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	471.5	472.5
3. Weight of Asphalt and Mineral matter Extracted, g	28.5	27.5
4. Weight of Mineral Matter, g	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g (corrected)	28.5	27.5
7. Bitumen content in %	5.70	5.50
8. Average	5.60	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	13.6	13.6	2.9	97.1	90 - 100
9.5	52.2	65.8	14.0	86.0	70 - 88
4.75	95.5	161.3	34.2	65.8	53 - 71
2.36	46.6	207.9	44.1	55.9	42 - 58
1.18	42.2	250.1	53.0	47.0	34 - 48
0.600	52.2	302.3	64.1	35.9	26 - 38
0.300	51.1	353.4	75.0	25.0	18 - 28
0.150	35.5	388.9	82.5	17.5	12 - 20
0.075	52.2	441.1	93.6	6.4	4 - 10

SIEVE SIZE mm	Test 2 Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.17
19	0	0	0	100	100
13.2	12.2	12.2	2.6	97.4	90 - 100
9.5	62.2	74.4	15.7	84.3	70 - 88
4.75	92.2	166.6	35.3	64.7	53 - 71
2.36	53.3	219.9	46.5	53.5	42 - 58
1.18	54.5	274.4	58.1	41.9	34 - 48
0.600	51.1	325.5	68.9	31.1	26 - 38
0.300	48.8	374.3	79.2	20.8	18 - 28
0.150	25.5	399.8	84.6	15.4	12 - 20
0.075	42.9	442.7	93.7	6.3	4 - 10

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